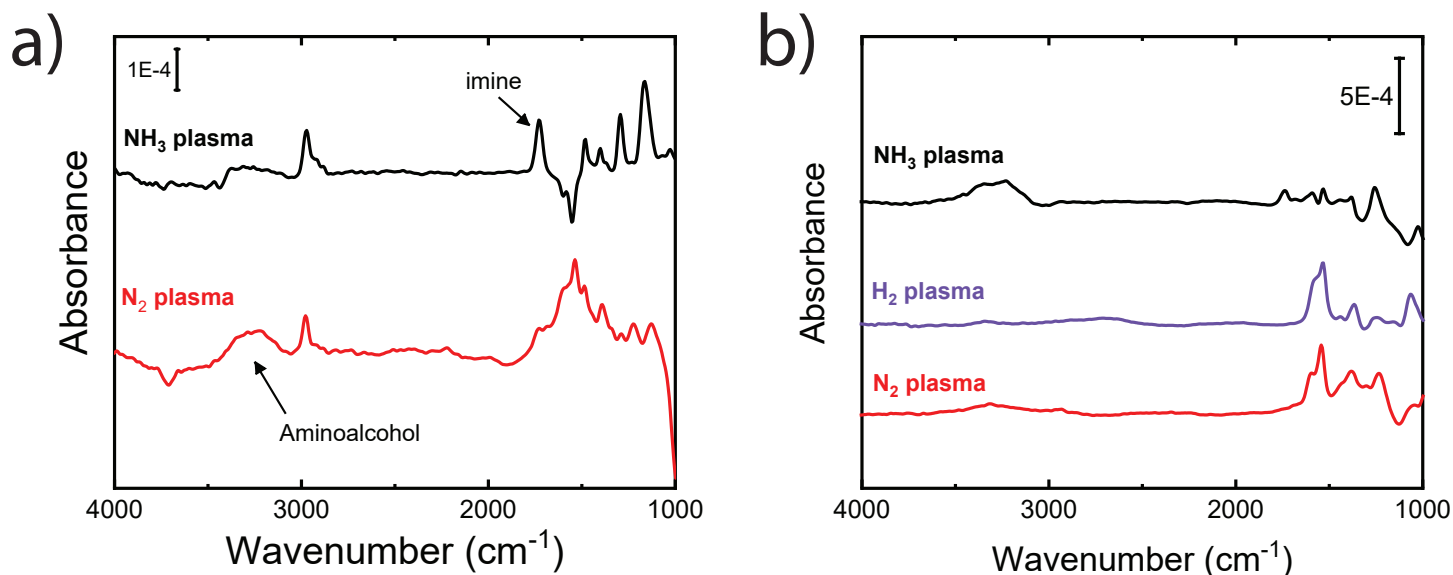


**Figure 1:** Reflection adsorption infrared spectroscopy (RAIRS) difference spectra for SiN<sub>x</sub> surfaces with a native oxide layer after pretreatments with (a) NH<sub>3</sub> plasma, (b) N<sub>2</sub> plasma, and (c) H<sub>2</sub> plasma. (d) Overview of the change in surface termination groups on the SiN<sub>x</sub> surfaces after exposure to the studied plasma pretreatments.



**Figure 2:** RAIRS spectra after (a) trimethylacetaldehyde (TMAAH) and (b) acetylacetone (Hacac) adsorption on plasma pretreated SiN<sub>x</sub> surfaces. TMAAH was found to adsorb largely in the imine configuration after a NH<sub>3</sub> plasma pretreatment, while adsorbing mostly in the aminoalcohol configuration after a N<sub>2</sub> plasma pretreatment. In the case of Hacac, significant adsorption was only observed on the H<sub>2</sub> and N<sub>2</sub> plasma pretreated SiN<sub>x</sub>, but not on the NH<sub>3</sub> plasma pretreated surface.